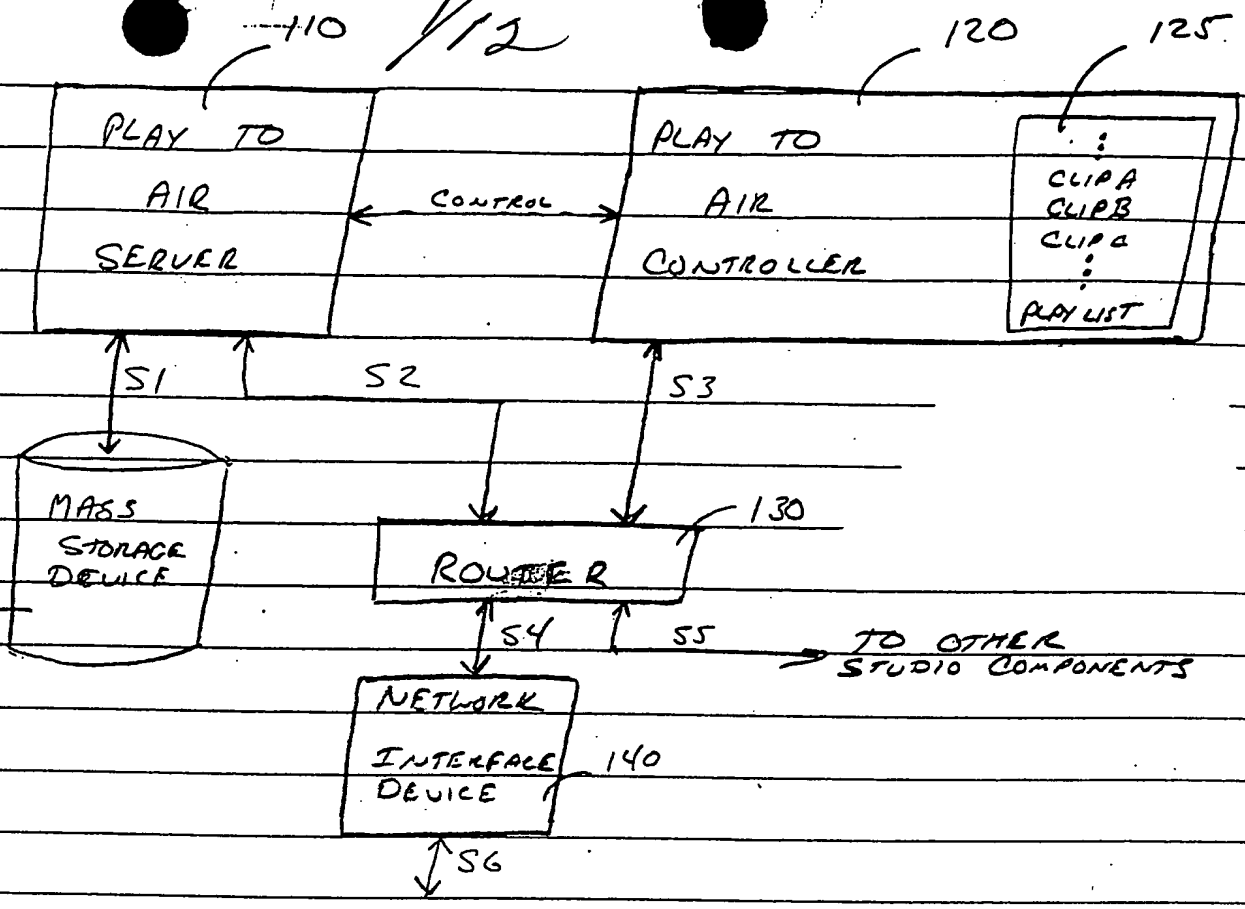
110
120
125
PLAY TO AIR SERVER
CONTROL
PLAY TO AIR CONTROLLER
CLIP A
CLIP B
CLIP a
PLAY LIST
S1
S2
S3
MASS STORAGE DEVICE
115
130
ROUTER
S4
S5
TO OTHER STUDIO COMPONENTS
NETWORK INTERFACE DEVICE
140
S6
TO OTHER STUDIOS

FIG. 1

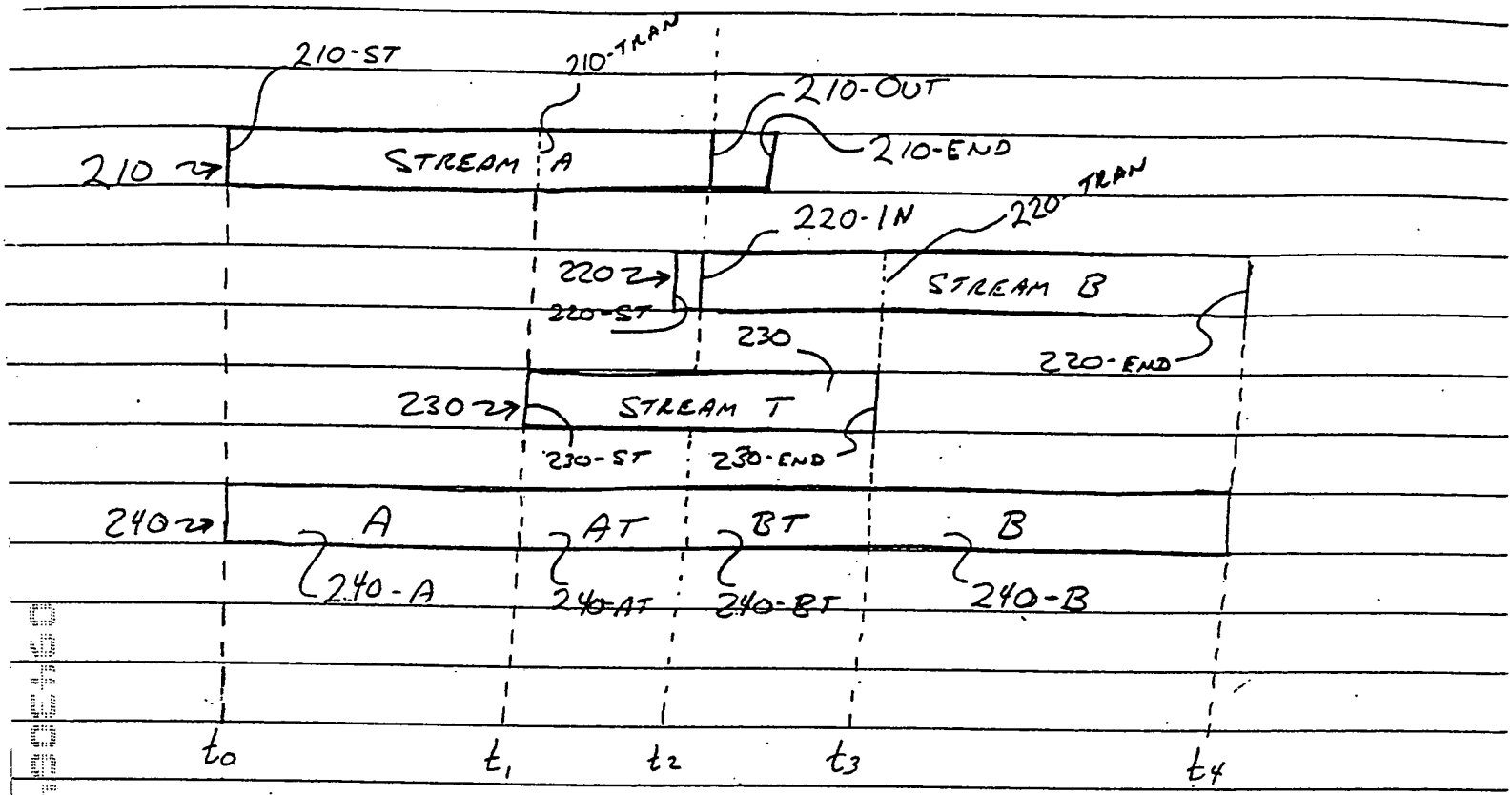

FIG. 2A

(SMPTE TIMECODES)

STREAM A	00:00:00:00	$< t_2$	00:00:02:13	N/A	N/
STREAM B	N/A	N/A	00:00:00:23	$> t_2$	00:00:
RESULTANT	00:00:00:00	$< t_2$	00:00:02:13	$> t_2$	00:00:
	t_0	t_1	t_2	t_3	t_4

FIG. 2B

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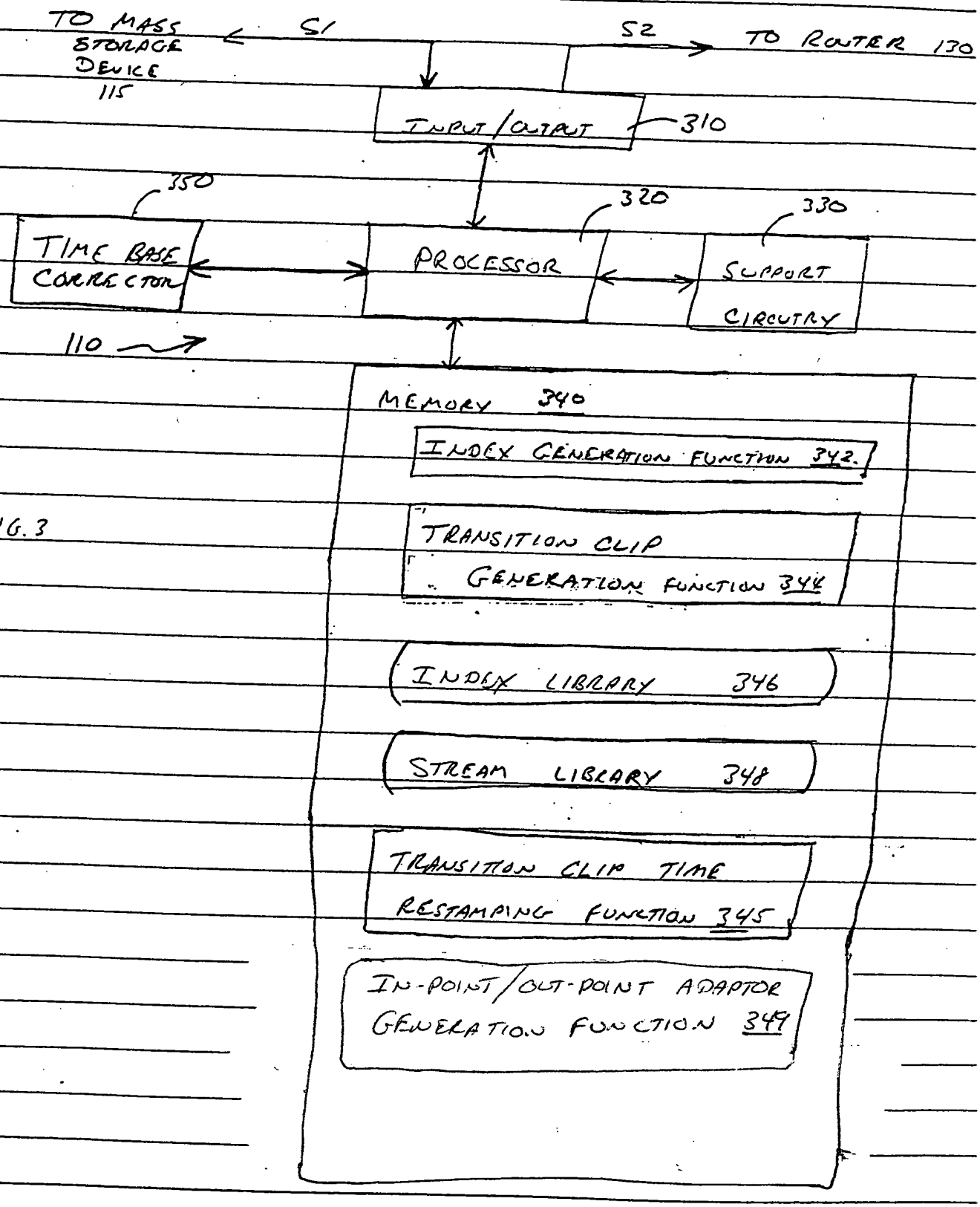
TO MASS STORAGE DEVICE 115
S1
S2
TO ROUTER 130
INPUT/OUTPUT
310
350
320
330
TIME BASE CORRECTOR
PROCESSOR
SUPPORT CIRCUITRY
110
MEMORY 340
INDEX GENERATION FUNCTION 342
TRANSITION CLIP GENERATION FUNCTION 344
INDEX LIBRARY 346
STREAM LIBRARY 348
TRANSITION CLIP TIME RESTAMPING FUNCTION 345
IN-POINT/OUT-POINT ADAPTOR GENERATION FUNCTION 349

FIG. 3

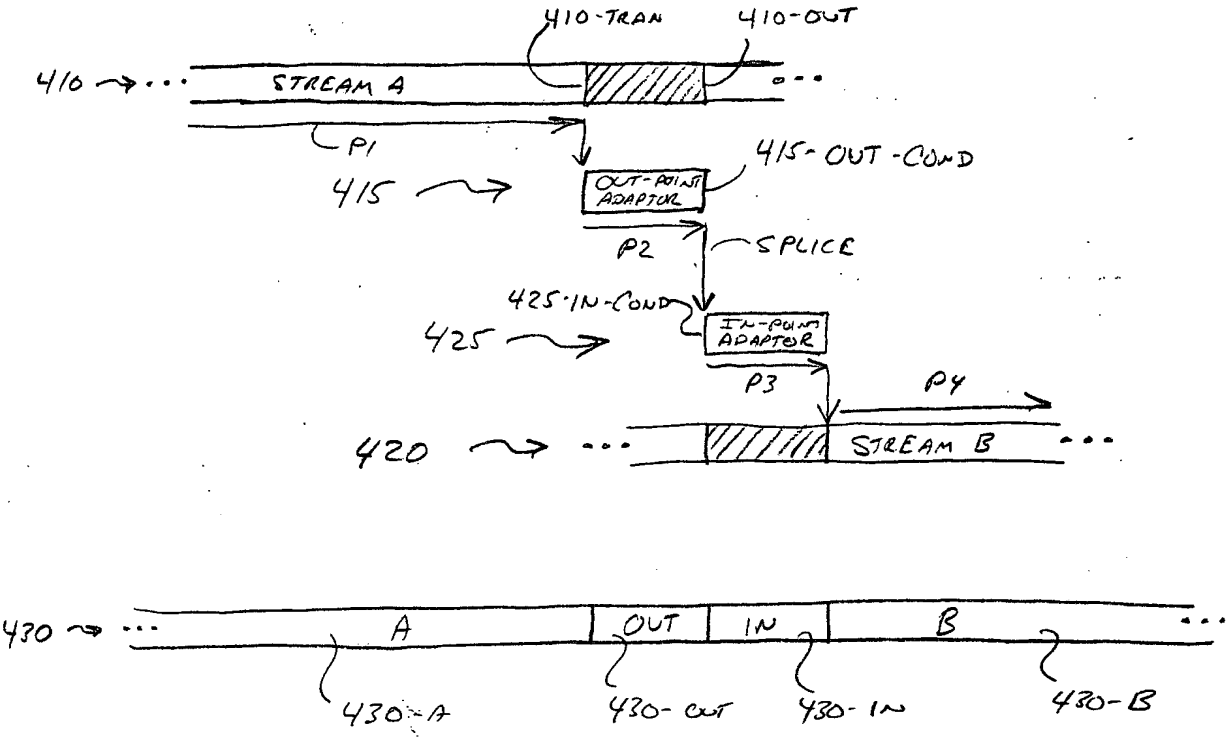

FIG. 4

22-141 50 SHEETS
22-142 100 SHEETS
22-144 200 SHEETS
AMPAD

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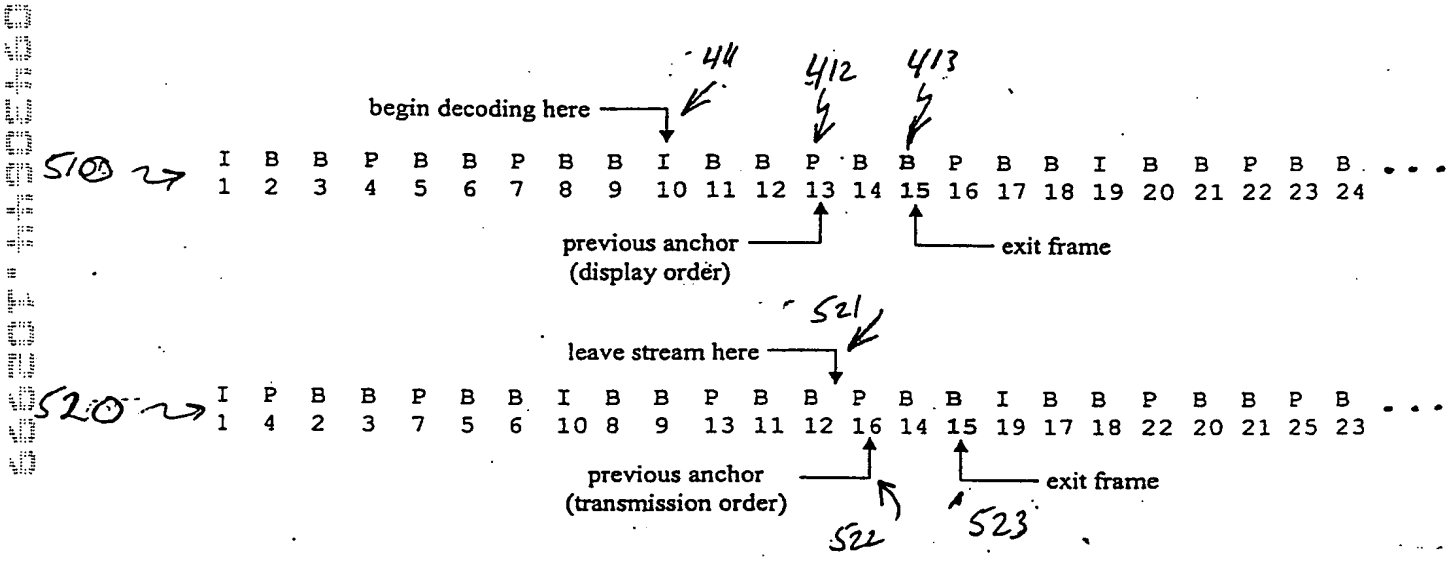
begin decoding here
previous anchor (display order)
exit frame
leave stream here
previous anchor (transmission order)
exit frame
510
520
I B B P B B P B B I B B P B B P B B I B B P B B
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
I P B B P B B I B B P B B P B B I B B P B B P B
1 4 2 3 7 5 6 10 8 9 13 11 12 16 14 15 19 17 18 22 20 21 25 23

FIG. 5

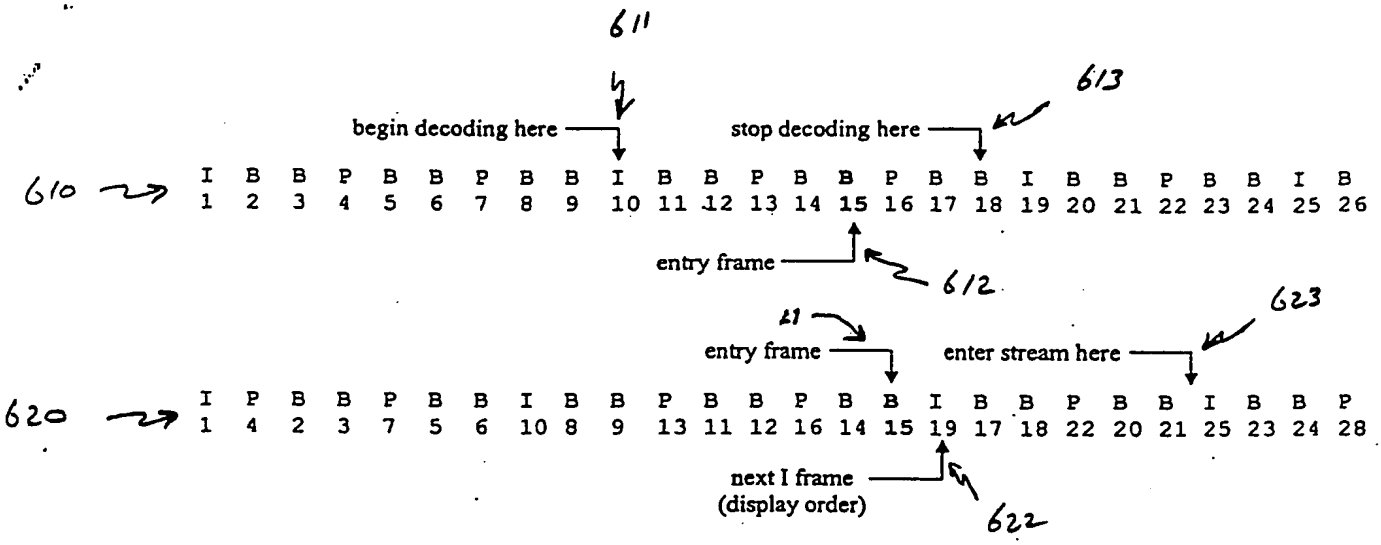
611
613
begin decoding here
stop decoding here
610
I B B P B B P B B I B B P B B P B B I B B P B B I B
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26
entry frame
612
621
623
entry frame
enter stream here
620
I P B B P B B I B B P B B P B B I B B P B B I B B P
1 4 2 3 7 5 6 10 8 9 13 11 12 16 14 15 19 17 18 22 20 21 25 23 24 28
next I frame
(display order)
622

FIG. 6

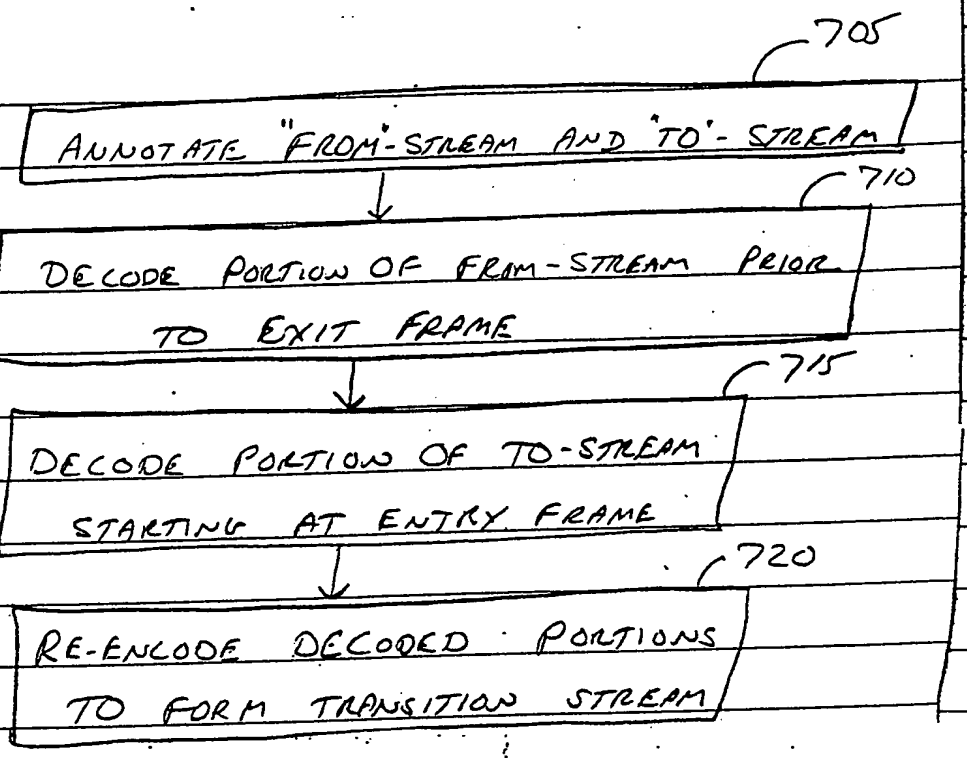
705
ANNOTATE "FROM"-STREAM AND "TO"-STREAM
710
DECODE PORTION OF FROM-STREAM PRIOR TO EXIT FRAME
715
DECODE PORTION OF TO-STREAM STARTING AT ENTRY FRAME
720
RE-ENCODE DECODED PORTIONS TO FORM TRANSITION STREAM

FIG. 7

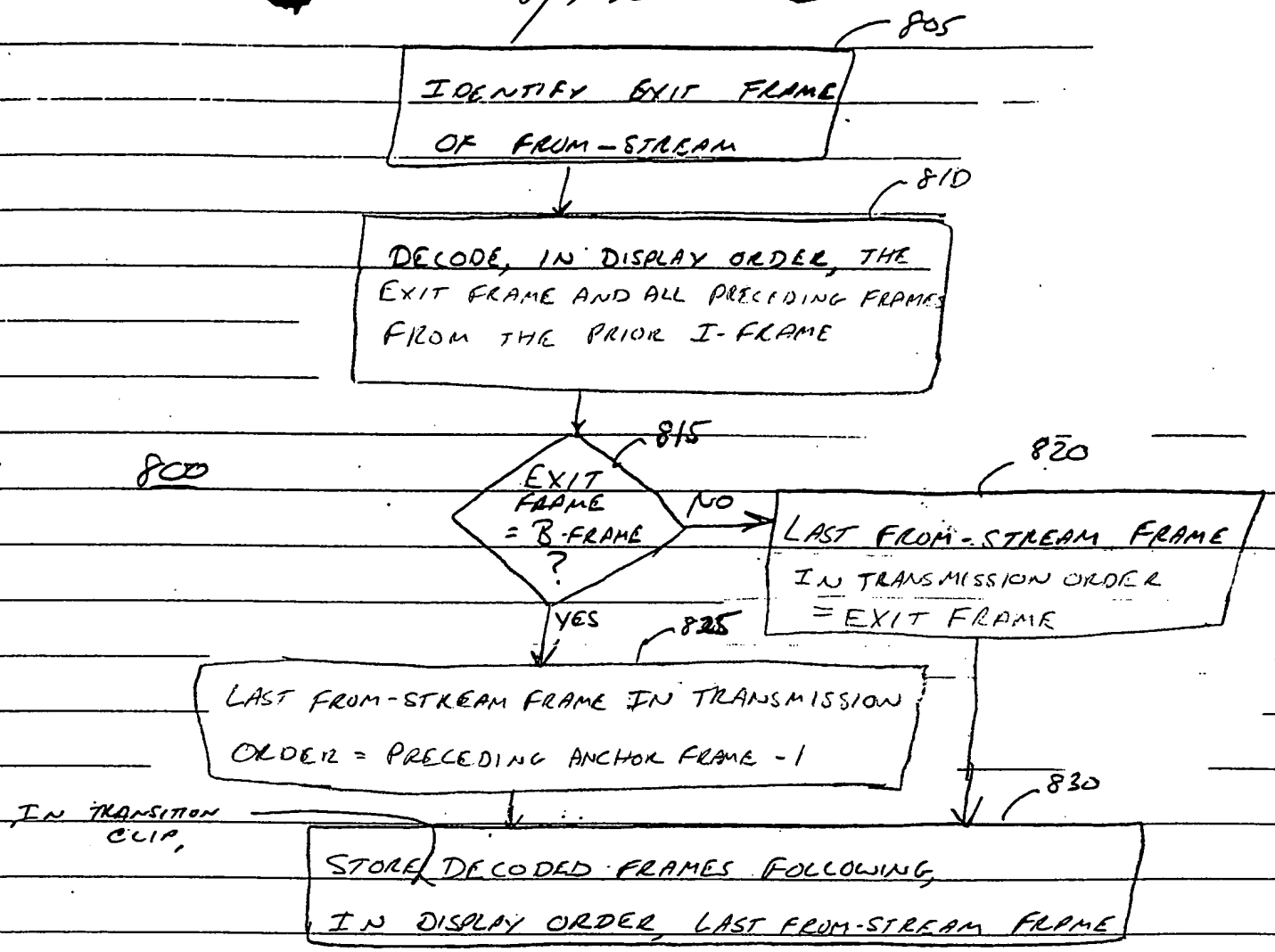
805
IDENTIFY EXIT FRAME OF FROM-STREAM
810
DECODE, IN DISPLAY ORDER, THE EXIT FRAME AND ALL PRECEDING FRAMES FROM THE PRIOR I-FRAME
800
815
EXIT FRAME = B-FRAME ?
NO
820
LAST FROM-STREAM FRAME IN TRANSMISSION ORDER = EXIT FRAME
YES
825
LAST FROM-STREAM FRAME IN TRANSMISSION ORDER = PRECEDING ANCHOR FRAME - 1
830
IN TRANSITION CLIP,
STORE DECODED FRAMES FOLLOWING, IN DISPLAY ORDER, LAST FROM-STREAM FRAME

FIG. 8

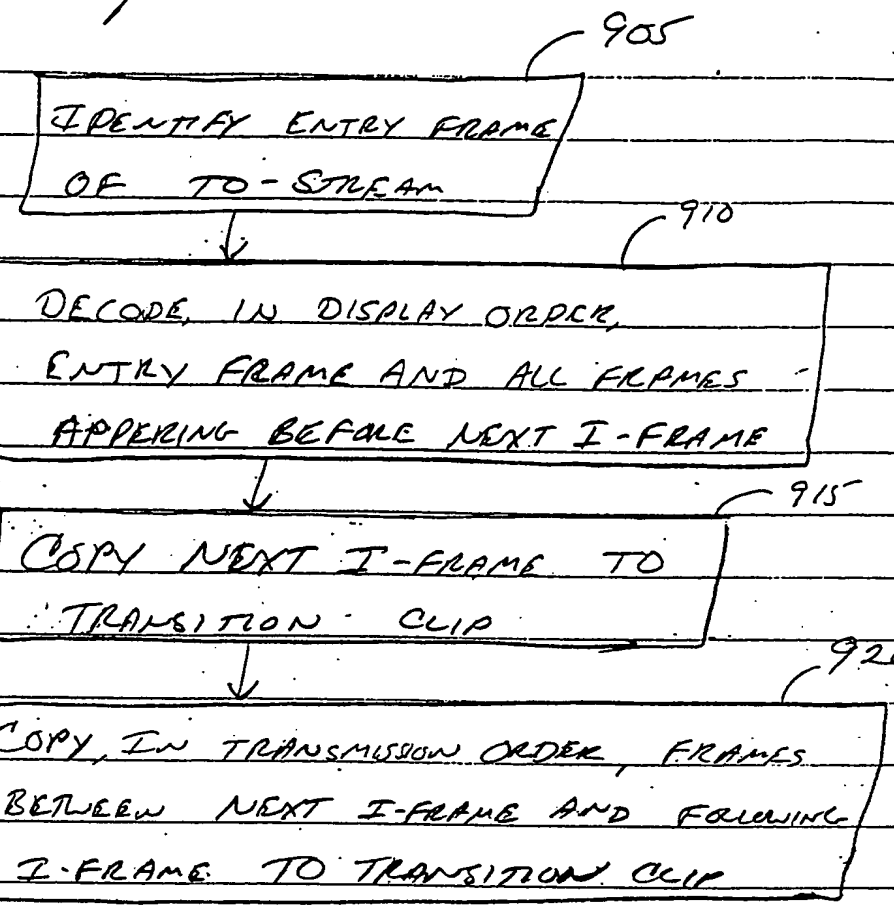
905
IDENTIFY ENTRY FRAME OF TO-STREAM
910
DECODE, IN DISPLAY ORDER, ENTRY FRAME AND ALL FRAMES APPEARING BEFORE NEXT I-FRAME
900
915
COPY NEXT I-FRAME TO TRANSITION CLIP
920
COPY, IN TRANSMISSION ORDER, FRAMES BETWEEN NEXT I-FRAME AND FOLLOWING I-FRAME TO TRANSITION CLIP

FIG. 9

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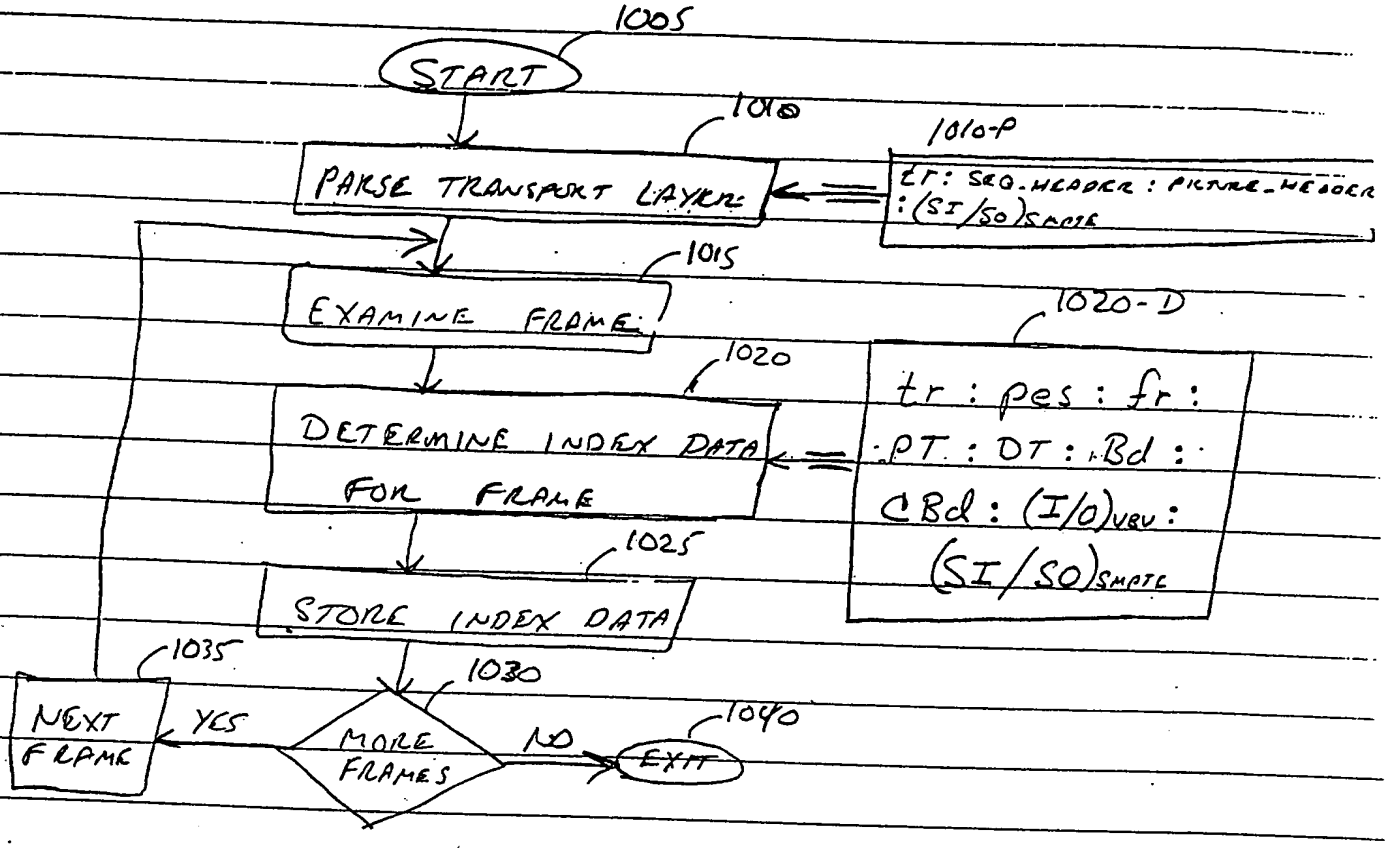
1005
START
1010
PARSE TRANSPORT LAYER
1010-P
tr: SEQ. HEADER : PICTURE_HEADER
: (SI/SO)SMPTE
1015
EXAMINE FRAME
1020-D
tr : pes : fr :
PT : DT : Bd :
CBd : (I/O)VBV :
(SI/SO)SMPTE
1020
DETERMINE INDEX DATA FOR FRAME
1030
1025
STORE INDEX DATA
1035
NEXT FRAME
YES
MORE FRAMES
NO
1040
EXIT

FIG. 10

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1	s:	29	e:	87[redacted]	fr:	0I	PT:	25500	DT:	22500	Bd:	250ms	cBd:	0ms	I	O
2	s:	879	e:	1213	fr:	3P	PT:	34500	DT:	25500	Bd:	217ms	cBd:	217ms		
3	s:	1214	e:	1444	fr:	1B	PT:	28500	DT:	0	Bd:	225ms	cBd:	225ms		
4	s:	1445	e:	1770	fr:	2B	PT:	31500	DT:	0	Bd:	240ms	cBd:	240ms		O
5	s:	1771	e:	2355	fr:	6P	PT:	43500	DT:	34500	Bd:	248ms	cBd:	248ms		
6	s:	2356	e:	2871	fr:	4B	PT:	37500	DT:	0	Bd:	236ms	cBd:	236ms		
7	s:	2872	e:	3298	fr:	5B	PT:	40500	DT:	0	Bd:	229ms	cBd:	229ms		O
8	s:	3299	e:	3840	fr:	9P	PT:	52500	DT:	43500	Bd:	230ms	cBd:	230ms		
9	s:	3841	e:	4225	fr:	7B	PT:	46500	DT:	0	Bd:	221ms	cBd:	221ms		
10	s:	4226	e:	4602	fr:	8B	PT:	49500	DT:	0	Bd:	224ms	cBd:	224ms		O
11	s:	4603	e:	4942	fr:	12P	PT:	61500	DT:	52500	Bd:	228ms	cBd:	228ms		
12	s:	4943	e:	5310	fr:	10B	PT:	55500	DT:	0	Bd:	235ms	cBd:	235ms		
13	s:	5311	e:	5678	fr:	11B	PT:	58500	DT:	0	Bd:	240ms	cBd:	240ms		O
14	s:	5679	e:	6497	fr:	13I	PT:	64500	DT:	61500	Bd:	245ms	cBd:	245ms	I	O
15	s:	6498	e:	6685	fr:	16P	PT:	73500	DT:	64500	Bd:	215ms	cBd:	215ms		
16	s:	6686	e:	7014	fr:	14B	PT:	67500	DT:	0	Bd:	234ms	cBd:	234ms		
17	s:	7015	e:	7365	fr:	15B	PT:	70500	DT:	0	Bd:	241ms	cBd:	241ms		O
18	s:	7366	e:	7594	fr:	19P	PT:	82500	DT:	73500	Bd:	248ms	cBd:	248ms		
19	s:	7595	e:	8045	fr:	17B	PT:	76500	DT:	0	Bd:	263ms	cBd:	263ms		
20	s:	8046	e:	8540	fr:	18B	PT:	79500	DT:	0	Bd:	261ms	cBd:	261ms		O
21	s:	8541	e:	8839	fr:	22P	PT:	91500	DT:	82500	Bd:	256ms	cBd:	256ms		
22	s:	8840	e:	9347	fr:	20B	PT:	85500	DT:	0	Bd:	267ms	cBd:	267ms		
23	s:	9348	e:	9841	fr:	21B	PT:	88500	DT:	0	Bd:	260ms	cBd:	260ms		O
24	s:	9842	e:	10213	fr:	25P	PT:	100500	DT:	91500	Bd:	256ms	cBd:	256ms		
25	s:	10214	e:	10704	fr:	23B	PT:	94500	DT:	0	Bd:	260ms	cBd:	260ms		
26	s:	10705	e:	11196	fr:	24B	PT:	97500	DT:	0	Bd:	255ms	cBd:	255ms		O
27	s:	11197	e:	12165	fr:	26I	PT:	103500	DT:	100500	Bd:	250ms	cBd:	250ms	I	O
28	s:	12166	e:	12536	fr:	29P	PT:	112500	DT:	103500	Bd:	208ms	cBd:	208ms		
29	s:	12537	e:	12994	fr:	27B	PT:	106500	DT:	0	Bd:	213ms	cBd:	213ms		
30	s:	12995	e:	13408	fr:	28B	PT:	109500	DT:	0	Bd:	211ms	cBd:	211ms		O
31	s:	13409	e:	13750	fr:	32P	PT:	121500	DT:	112500	Bd:	212ms	cBd:	212ms		
32	s:	13751	e:	14158	fr:	30B	PT:	115500	DT:	0	Bd:	219ms	cBd:	219ms		
33	s:	14159	e:	14563	fr:	31B	PT:	118500	DT:	0	Bd:	221ms	cBd:	221ms		O
34	s:	14564	e:	14886	fr:	35P	PT:	130500	DT:	121500	Bd:	222ms	cBd:	222ms		
35	s:	14887	e:	15290	fr:	33B	PT:	124500	DT:	0	Bd:	231ms	cBd:	231ms		
36	s:	15291	e:	15696	fr:	34B	PT:	127500	DT:	0	Bd:	233ms	cBd:	233ms		O
37	s:	15697	e:	15999	fr:	38P	PT:	139500	DT:	130500	Bd:	234ms	cBd:	234ms		
38	s:	16000	e:	16403	fr:	36B	PT:	133500	DT:	0	Bd:	244ms	cBd:	244ms		
39	s:	16404	e:	16802	fr:	37B	PT:	136500	DT:	0	Bd:	246ms	cBd:	246ms		O
40	s:	16803	e:	17627	fr:	39I	PT:	142500	DT:	139500	Bd:	249ms	cBd:	249ms	I	O
41	s:	17628	e:	17916	fr:	42P	PT:	151500	DT:	142500	Bd:	218ms	cBd:	218ms		
42	s:	17917	e:	18326	fr:	40B	PT:	145500	DT:	0	Bd:	229ms	cBd:	229ms		
43	s:	18327	e:	18743	fr:	41B	PT:	148500	DT:	0	Bd:	230ms	cBd:	230ms		O
44	s:	18744	e:	19066	fr:	45P	PT:	160500	DT:	151500	Bd:	231ms	cBd:	231ms		
45	s:	19067	e:	19492	fr:	43B	PT:	154500	DT:	0	Bd:	240ms	cBd:	240ms		
46	s:	19493	e:	19925	fr:	44B	PT:	157500	DT:	0	Bd:	240ms	cBd:	240ms		O
47	s:	19926	e:	20246	fr:	48P	PT:	169500	DT:	160500	Bd:	240ms	cBd:	240ms		
48	s:	20247	e:	20683	fr:	46B	PT:	163500	DT:	0	Bd:	248ms	cBd:	248ms		
49	s:	20684	e:	21122	fr:	47B	PT:	166500	DT:	0	Bd:	248ms	cBd:	248ms		O
50	s:	21123	e:	21454	fr:	51P	PT:	178500	DT:	169500	Bd:	247ms	cBd:	247ms		
51	s:	21455	e:	21895	fr:	49B	PT:	172500	DT:	0	Bd:	255ms	cBd:	255ms		
52	s:	21896	e:	22373	fr:	50B	PT:	175500	DT:	0	Bd:	254ms	cBd:	254ms		MO
53	s:	22375	e:	23078	fr:	52I	PT:	181500	DT:	178500	Bd:	250ms	cBd:	250ms	I	O
54	s:	23079	e:	23416	fr:	55P	PT:	190500	DT:	181500	Bd:	229ms	cBd:	229ms		

1110 1120 1130 1140 1150 1160 1170 1180

1100

FIG. 11

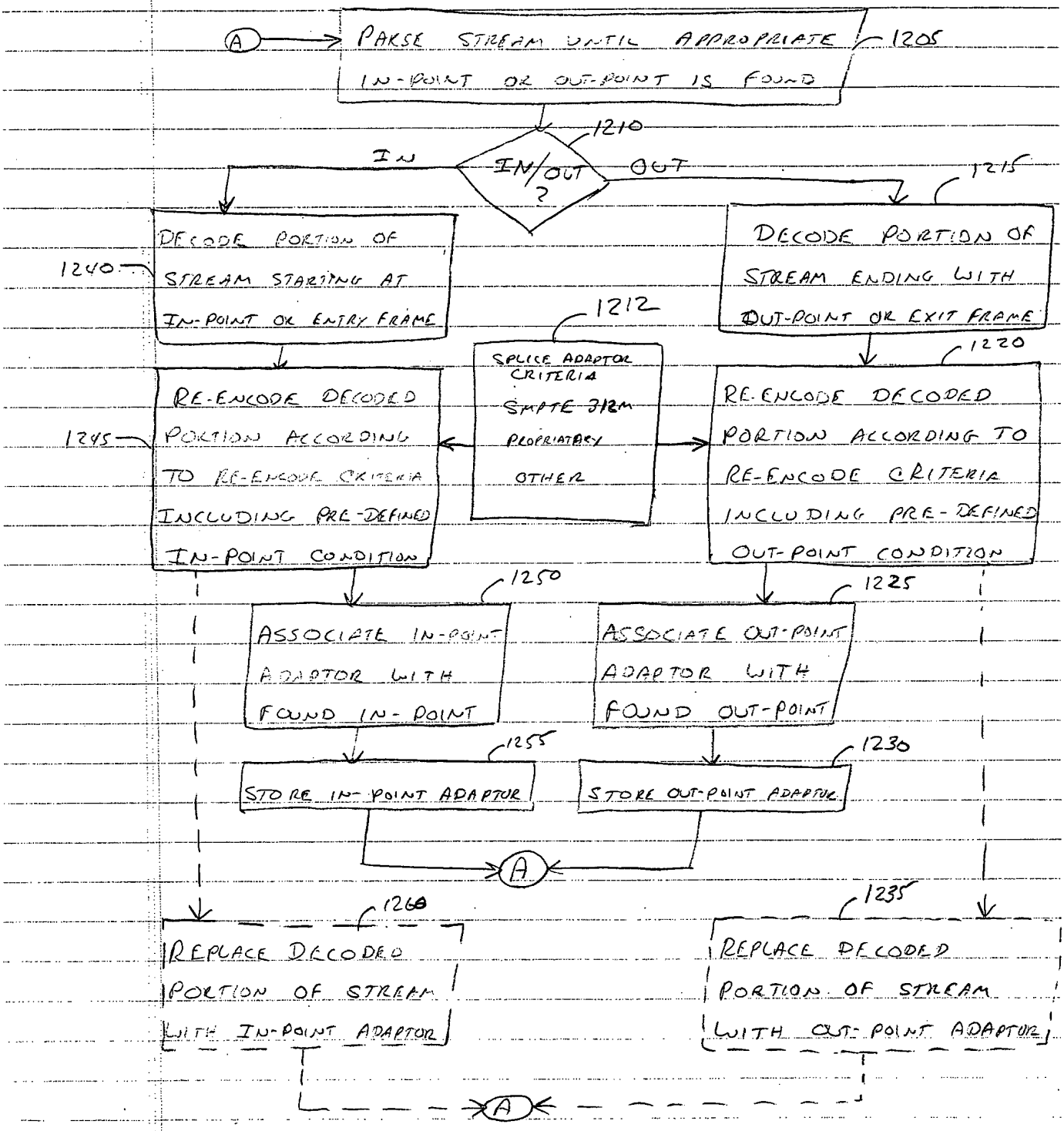
A
PARSE STREAM UNTIL APPROPRIATE IN-POINT OR OUT-POINT IS FOUND
1205
1210
IN/OUT ?
IN
OUT
1215
DECODE PORTION OF STREAM STARTING AT IN-POINT OR ENTRY FRAME
1240
DECODE PORTION OF STREAM ENDING WITH OUT-POINT OR EXIT FRAME
1212
SPLICE ADAPTOR CRITERIA
SMPTE 312M
PROPRIATARY
OTHER
1220
RE-ENCODE DECODED PORTION ACCORDING TO RE-ENCODE CRITERIA INCLUDING PRE-DEFINED IN-POINT CONDITION
1245
RE-ENCODE DECODED PORTION ACCORDING TO RE-ENCODE CRITERIA INCLUDING PRE-DEFINED OUT-POINT CONDITION
1250
1225
ASSOCIATE IN-POINT ADAPTOR WITH FOUND IN-POINT
ASSOCIATE OUT-POINT ADAPTOR WITH FOUND OUT-POINT
1255
1230
STORE IN-POINT ADAPTOR
STORE OUT-POINT ADAPTOR
A
1260
1235
REPLACE DECODED PORTION OF STREAM WITH IN-POINT ADAPTOR
REPLACE DECODED PORTION OF STREAM WITH OUT-POINT ADAPTOR
A

FIG. 12